# Funding and Implementation of Pedestrian and Bicycle Improvements in Northeastern Illinois

Transportation project funding can be a challenge. Projects may have many phases of planning, design, and implementation. Projects typically involve multiple agencies. Sponsors of pedestrian and/or bicycle related projects often are not sure where to turn for funding. Competition for resources can be fierce.

As part of the plan development process, *Soles and Spokes* gathered information on the funding and progress of pedestrian and bicycle projects. We wanted to learn more about how ped/bike improvements are funded, whether there is a mismatch between demand and resources, and whether some types of projects have higher implementation rates than others.

Pedestrian and bicycle oriented projects include: sidewalks, bicycle parking, trails, bridges, bicycle lanes, intersection improvements and promotional programs. Sometimes projects are "stand alone" (for example, adding a sidewalk to an existing roadway) and sometimes they are elements of a larger transportation project (for example, adding a sidewalk during roadway reconstruction). Our research examined both kinds of implementation strategies.

## **Bicycle- and Pedestrian-Focused Projects**

Pedestrian and bicycle improvements and programs are funded in a variety of ways. CATS maintains the Transportation Improvement Program (TIP), which lists federally funded projects and regionally significant, non-federally funded projects planned for implementation in the upcoming years. The TIP provides information on project funding sources and project progress. For example, the TIP might show that a trail project secured funding for an initial design study to determine the project's feasibility and alignment, with a preliminary estimate of construction costs. If all goes well, a project then moves into detailed design, right-of-way acquisition, detailed estimates of costs, then construction and construction oversight. Some projects listed in the TIP are funded for all phases. Others seek funding separately for each new phase.

CATS staff used the TIP and other sources to investigate not only the state of funding for pedestrian and bicycle projects, but also their progress towards implementation. Secure funding does not guarantee construction of the project. One way to determine if a project is making progress is to see if the funds have been used, or obligated. We researched projects funded through federal and state transportation funding programs, as well as those that are implemented as part of larger transportation projects.

## **Transportation Funding Programs**

The Congestion Mitigation and Air Quality Improvement (CMAQ) Program and Illinois Transportation Enhancement Program (ITEP) are the largest fund sources for pedestrian and bicycle projects in northeastern Illinois. Table 34 shows that over \$90 million in CMAQ and ITEP funds were used to program 232 bicycle and pedestrian projects since the beginning of ISTEA in 1992. The locally-programmed surface transportation program (STP-L) is another significant funding source. Table 35 shows that STP-L funds were involved in 29 (22%) of the 109 pedestrian and bicycle projects in the *FY 2002 - 2006 TIP*. See Appendix H for details.



Table 34
ISTEA and TEA-21 Funding of Bicycle and Pedestrian Projects
Northeastern Illinois, 1992-2003, as of March, 2003

Program	Dollars Programmed (Federal Share,			Number of Pr	ojects Fund	ed
	Rounded to Nearest Thousand)					
	ISTEA	TEA-21	Total	ISTEA	TEA-21	Total
CMAQ	16,914,000	26,857,000	43,771,000	71	80	151
ITEP	26,987,000	20,117,000	47,104,000	53	28	81
Total	43,901,000	46,974,000	90,874,000	124	128	232

Prepared by the Chicago Area Transportation Study, May, 2003. Sources: IDOT, *Illinois Transportation Enhancement Programs*, 1993, 1994, 2000-2002, 2001-2003, <a href="www.catsmpo.com/progs/List of Approved CMAQ">www.catsmpo.com/progs/List of Approved CMAQ</a> Projects\_021803.pdf, showing list of programmed projects.

Table 35
Funds Programmed for Bicycle and Pedestrian Projects
Northeastern Illinois, as of March, 2003

Fund Source	Dollars Programmed (Rounded to	Number of
	Nearest Thousand)	Projects
CMAQ	\$18,953,000	46
ITEP	19,132,000	29
Locally-Programmed Surface	12,540,000	24
Transportation Program (STP-L)		
Operation GreenLight Transit (OGL)	3,522,000	9
High Priority Project (HPP)	901,000	1
Total	\$55,048,000	109

Prepared by the Chicago Area Transportation Study, May 2003. Source: FY 2002-2006 Transportation Improvement Program for Northeastern Illinois, as of March 14, 2003.

### **Department of Natural Resources Funding Programs**

Some pedestrian and bicycle funding in northeastern Illinois originates from the Illinois Department of Natural Resources (IDNR). The IDNR Bicycle Trail Grant Program tends to fund more recreationally oriented projects than the transportation programs discussed above, but the projects still often serve transportation needs. The program usually funds stand-alone projects, but is occasionally used as a match source for large federally funded projects. Since 1990 through March, 2003, the annual average total project cost for IDNR-funded projects is about \$5.3 million per year for northeastern Illinois. Details by district and year are in Appendix H.

## Case Study— FY 2001 Funding Decisions

As the analysis above suggests, the funding mix for transportation projects is somewhat complex. To determine whether complexity thwarted improvements, we reviewed a set of submittals for funding to determine the progress of the project. We researched the status of the 41 bike and pedestrian projects that sought CMAQ funding in 2001. Of the 24 projects that were not programmed for CMAQ funds that year, we looked to see if other resources were found. We also looked at the progress of the projects that were programmed through CMAQ that year. We compared the projects by type to see if some kinds of projects were more successful than others at getting funding and making progress towards construction.



In 2001, there were 41 CMAQ applications for pedestrian and/or bicycle projects. Of those, 17 (41%) were programmed; 24 were not. Half of the unfunded projects were picked up by other sources, such as municipal funds, STP-L funds, ITEP and Operation GreenLight. At least four projects were programmed for CMAQ during a subsequent round. At least 12 other projects were on hold because of lack of funding. See Table 36.

Table 36
Status of Pedestrian and Bicycle Projects Not Programmed by CMAQ in 2001

		<b>.</b> .	•
Project Status	# of projects	Alternative Funding Source	# of projects*
Still not funded	12	N/A	
Found other	12	Locally Programmed STP	6
funding		Transportation Enhancement	3
		CMAQ (other year)	4
		Municipal Funds	2
		Operation GreenLight	1
Total	24		
*Some projects have	more than on	e primary funding source	

Prepared by the Chicago Area Transportation Study, May, 2003. Data reflects interviews with project sponsors and TIP status as of March, 2003.

24 of the 41(59%) projects seeking funding from CMAQ in 2001 are still active or complete. Two additional projects are active, but have changed significantly in scope. One grade separation project is now an at-grade crossing improvement. A trail project is now a sidepath project. The figures in Table 37 suggest that sidepaths make up a large share of projects seeking funding (37%), but that they have the second lowest success rate at receiving CMAQ or other funding (53%). Bridge and grade separation projects comprised 15% of the application pool. Only a third of these projects are active.

Eleven of the unfunded, on hold projects are sidepaths or bridge/grade separation projects, or have those facilities as major components. This is likely related to their high cost relative to other ped and bike related projects. These projects also tend to be complex, requiring right of way acquisition and complex design. Many are attempts to retrofit transportation projects that didn't address walking and biking needs when built or reconstructed.

Table 37

Type and Status of Pedestrian and Bicycle Projects Seeking CMAQ Funding in 2001

Type and Status of I	caesti tait aire	a Diegele i rojects i	Jeening (	Jivii Q I dildi	15 III 2001
Type	Complete or	Changed,	Totals	Percent of	Percent
	Active	Inactive, Dropped		Total	Complete or
		or Unknown		Applications	Active
Bridge/grade separation	2	4	6	15%	33%
Sidewalk	7	0	7	17%	100%
Trail	6	3	9	22%	67%
Sidepath	8	8	16	39%	50%
Bike parking	2	0	2	5%	100%
Bicycle Encouragement	1	0	1	2%	100%
	26	15	41		

Prepared by the Chicago Area Transportation Study, May, 2003. Data reflects interviews with project sponsors and TIP status as of March, 2003. Note: Sidepaths are defined as roadside facilities designed for bicycling, 8' or more in width (typically 10-12'). Sidewalks are typically 5' in width, but may be more, and are designed for pedestrians.



Thus, the primary complexity for project implementation for stand-alone bicycle and pedestrian projects may be associated primarily with the projects themselves, rather than the funding process. Complex proposals such as grade separations tend to have a low implementation rate. Less complex proposals, on the other hand, seem more likely to be able to navigate the funding process.

## Funding Bicycle and Pedestrian Improvements within Other Transportation Projects

In addition to the above investments, governments also invest money in bicycle and pedestrian facilities as part of other, larger transportation investments. For example, when a road is reconstructed, a sidewalk or bike facility can be included in the highway project. As part of plan development, CATS staff set out to investigate the extent and effectiveness of the transportation improvement process for improving the bicycle and pedestrian environment.

Staff reviewed all IDOT *Notices of Lettings* from July 1, 1999 to June 30, 2000. These lettings comprise almost all state-funded and federally funded local agency projects in the region. Pavement and bridge sections in IDOT's District 1 included more than 675,000 square feet of sidewalks. At about \$5.50 per square foot, these pedestrian accommodations cost more than \$3.7 million to construct. These funds came from a mix of IDOT, federal, and local agency funds. 129

## Do roadway projects routinely accommodate pedestrian travel through the provision of sidewalks?

The analysis below shows that the current policy environment provides a large amount of sidewalks as part of construction projects. But a significant portion of the roadway system remains without a continuous sidewalk, even in residential, commercial, industrial, school and park areas after large transportation investments. Institutional and funding variations failed to explain these gaps. For example, the local match is greater for state-sponsored projects than federally funded, locally sponsored projects. However, this variation in local cost participation does not seem to have a significant relationship to the provision of sidewalks. To change the results of the funding decisions, it appears that more than the match rate may need to change.

51 of the 110 IDOT District 1 paving sections let from July 1999 to June 2000 included sidewalks in the *Notice of Letting*. Projects with a high level of investment tend to include some sidewalks. 13 of 17 reconstruction projects, and 11 of the 13 roadway widening or widening and resurfacing projects included sidewalks. Of the 54 resurfacing projects, 18 included sidewalks in the *Notice of Letting*.

Sidewalk investments vary within project type. Among widening and widening/resurfacing projects with a defined length, 0.8 miles of sidewalk were provided per project mile on average

<sup>&</sup>lt;sup>129</sup> The local municipality or county usually decides whether to include the sidewalk in the construction project, even for IDOT projects. In the case of IDOT projects, the local agency is responsible for 50% of the construction cost; in the case of federally funded local agency projects, the municipality would typically absorb 20% of the construction cost. Right-of-way participation varies. County policies vary from full county funding to no participation. See the following section regarding policies.



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per project, with a range of 0 to 1.44.<sup>130</sup> Reconstruction projects provided 0.5 miles of sidewalk per project mile on average per project, with a range from 0 to 1.5. For resurfacing projects, this dropped to 0.1 miles of sidewalk provided per project mile on average per project, with a range from 0 to 2.5.<sup>131</sup>

To determine the source of the variation in the provision of sidewalks, *Soles and Spokes* analyzed a sample of capital maintenance and capital improvement projects on arterial and collector highways. Resurfacing projects and other projects not requiring a project development report were not included, nor were intersection improvements less than .5 miles long.

We selected a stratified sample of 48 projects for which a project development report would be required. Lettings from April 2000 back to November 1996 were used. Beginning with the April 2000 letting, we worked back within each stratification, gathering data for every project that met the criteria until we arrived at the sample. Twelve projects were collected for each stratification in a two by two matrix of IDOT or local project sponsorship by Cook County or collar county locations. Cost, location, project length, square feet of sidewalks included on the letting, surrounding land uses, and inspection of digital aerial photographs with a 2 foot resolution were collected for each project.

#### Variation in the Level of Expenditures for Sidewalks and Sidewalk Coverage

Sidewalk expenditures as a percentage of total project construction costs were established for each element of the stratified sample. Table 38 shows a summary of the information:

Table 38
Estimated Expenditures for Sidewalks as a Percent of Construction Awards
Linear Arterial and Collector Projects Subject to Phase-1 Engineering
Northeastern Illinois, 1996-2000

Sponsor	Cook County	Collar Counties
IDOT	2.4%	1.6%
Local Agency	4.5%	4.3%

Prepared by the Chicago Area Transportation Study, May, 2003. Notes: Data based on stratified sample of federal- or state-funded projects greater than 0.5 miles long for which a project development report would be required. Used \$5.50 per square foot as the price for sidewalk construction. Sidewalk square feet information from Notices of Letting published by IDOT. Project cost data from CATS based on IDOT information.

By choosing the sample from just projects that required a project development report, process variables explaining the above differences have been controlled.

Much of the variation between IDOT and local agencies in the proportion of project funds provided for sidewalks is because IDOT road investments are much higher on a per mile basis. The next section shows that much (but not all) of the variation disappears when the data is reviewed in terms of miles, rather than dollars.

<sup>&</sup>lt;sup>132</sup> Except the March, 2000 letting, which was unavailable.



<sup>&</sup>lt;sup>130</sup> Providing sidewalks on both sides of the street for the entire project would yield 2.0. However, many sidewalks last for 40 to 50 years, double the life of roadway pavements. So one would expect full long-term sidewalk investments to be as low as 1 mile per mile of project, assuming maintenance of a completed network of sidewalks and no disruption of existing sidewalks.

<sup>&</sup>lt;sup>131</sup> These numbers are unweighted.

A hypothesis explaining lower IDOT expenditure rates for sidewalks is that sidewalks are less likely to be constructed as part of IDOT projects than local agency projects because of a lower IDOT match rate. To test this hypothesis, Table 39 was developed. Table 39 shows the proportion of a complete sidewalk build-out that was included in the lettings.

Table 39
Proportion of Sidewalk Build-out Environment Included in Project Construction Letting
By Sponsor Agency and Project Location
Northeastern Illinois, 1996-2000

Sponsor	Cook County	Collar Counties
IDOT	30%	22%
Local Agency	36%	25%

Prepared by Chicago Area Transportation Study, May, 2003. Notes: Data based on stratified sample of federal- or state-funded arterial or collector projects greater than 0.5 miles long for which a project development report would be required. Project length information from IDOT and CATS. Sidewalk square feet constructed from IDOT Notice of Letting. Sidewalk build-out environment assumed to be two five-foot sidewalks on each side of the road. The project cost of this build-out environment is approximately \$290,000 per mile.

IDOT-sponsored projects have a somewhat lower rate than locally-sponsored projects, but Table 39 shows that the big difference in sidewalk provision is between Cook County and the collar counties. This raised the question of whether differences in land use or pre-project conditions explain the variation.

*Soles and Spokes* reviewed aerial photography with 2 foot resolution to determine how land use affected the provision of sidewalks for the projects in the stratified sample. Each project was broken into discrete sections of typical land use, with each side of the street analyzed separately. *Soles and Spokes* reviewed whether segment engineering and construction activities resulted in a continuous sidewalk for the project segment. <sup>133</sup> Table 40 shows the results of this analysis.

Table 40
Percent of Sample 1996-2000 Constructed Segments
With Continuous Sidewalks in the Post-Project Environment,
Northeastern Illinois, 2002

#### With Adjacent **Residential** Land Use:

Sponsor	Cook County	Collar Counties	Total
IDOT	54.6%	50.5%	52.8%
Local Agency	62.0	50.9	55.6
Total	56.3	50.6	53.7

#### With Adjacent Commercial or Industrial Land Use:

Sponsor	Cook County	Collar Counties	Total
IDOT	58.1%	38.0%	47.6%
Local Agency	53.3	48.5	51.3
Total	57.1	39.5	48.2

<sup>&</sup>lt;sup>133</sup> As noted previously, there is an existing sidewalk inventory into which most projects fit. So the analysis only reviews post-project conditions. This controls for whether there were sufficient sidewalks in the pre-project condition.



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#### With Adjacent School or Park Land Use:

Sponsor	Cook County	Collar Counties	Total
IDOT	*	*	*
Local Agency	*	44.9	58.0
Total	*	56.8	55.8

Note: \* indicates that the aggregate segment sample < 5 miles or number of segments < 12.

### With Adjacent Cemetery, Transportation, or Agriculture Land Use: 134

Sponsor	Cook County	Collar Counties	Total
IDOT	46.3	3.2	18.4
Local Agency	17.5	40.3	29.1
Total	37.5	10.5	21.0

Prepared by Chicago Area Transportation Study, May, 2003. Notes: Data based on stratified sample of federal- or state-funded arterial or collector projects greater than 0.5 miles long for which a project development report would be required. Projects let 1996-2000 with local agency or IDOT sponsorship. Land use determined using visual inspection of Digiair aerials and Rand McNally's Chicago 6-County 2002 atlas. Multiple adjacent land uses are possible. Sidewalk coverage was determined using Digiair aerial photography taken in the summer of 2002, by which time construction activity had ceased for sample projects. Resolution of aerial photography 2 feet. Sidewalk coverage and land use data was collected separately for each side of the road.

Comparing the land uses in Table 40, the data seem to indicate that the provision of sidewalks is more clearly related to existing land use and location than to whether the sponsoring agency is IDOT or a local agency. Thus, the difference between the 50% local sidewalk cost share required for IDOT projects and the 20% local share typical for locally-sponsored federally-funded projects does not appear to be as important as other factors in explaining whether sidewalks are provided.

More importantly, the data seem to indicate that current mechanisms do not result in continuous sidewalks, even in the midst of urban and suburban land uses, in a large portion of road construction projects.

#### **Summary and Analysis**

The current policy environment provides a large amount of sidewalks as part of construction projects. But a significant portion of the roadway system remains without a continuous sidewalk, even after construction projects adjacent to residential, commercial, industrial, school and park areas. The analysis above showed that institutional and funding variations failed to explain these gaps in the sidewalk system. Rather, the current system has at its core dispersed local government decisions regarding sidewalk policies and resources to be allocated for sidewalks. Since local governments have varying and sometimes very limited resources, the level of investments in sidewalks reflects those constraints as well as the local political mandate for sidewalks. Thus, provision of sidewalks varies across jurisdiction and across the region, leaving gaps in the provision of sidewalks even after road construction projects.

#### **Expenditures in the Context of a Transportation System**

Adding the total funds from road improvement projects analysis to the bicycle and pedestrian projects for FY 2000, approximately \$12.1 million in regional transportation funds was being spent on federally funded and state funded pedestrian and bicycle improvements in northeastern Illinois. Adding DNR funds to the total brings this to \$15.9 million. This is nearly 2% of the

<sup>&</sup>lt;sup>134</sup> The cemetery, transportation, or agriculture land uses were by far the most varied among the categories studied. The disparities in land use appear to be reflected in the disparities in associated sidewalk coverage.



\$806 million in regional highway program awards for the year, or about 1.5% if DNR funds are excluded. Sidewalk construction provided as part of highway projects, at \$3.7 million, accounted for about 0.46% of the highway awards.

Looking at a longer time frame, the \$51 million total for bike-ped focused projects from 1998 to 2002 was 1.3% of the \$3.975 billion highway program for the period, or more than 1.7% if routine sidewalk construction at the same rate as in 2000 is included. 136

Clearly, bicycle and pedestrian improvements are a small part of the regional funding puzzle. How do these relatively small numbers fit into the regional transportation system? Perhaps the best way to answer that question is from the project development cost perspective. Table 41 shows a summary the development costs per mile (excluding right-of-way) for a multi-modal arterial boulevard, a concept of the *Shared Path 2030* process (complete details are in Appendix I). Table 41 shows us that even for enhanced high-level, enhanced bicycle and pedestrian accommodation, the costs are not a large portion of the total costs.

Table 41
Enhanced 4-Lane Multi-modal Urban Arterial Development Cost
Excluding Right-of-Way and Structures

Excluding Right-of-way and Structures				
Improvement	Cost per Mile	% of TOTAL		
Fixed Pavement Elements (suitable for ADT	1,610,852.37	18.1%		
of 40,000 passenger vehicles)	, ,			
Clearing, grubbing, rough grading, excavation, Reworking <i>in situ</i> subbase, 4" granular subbase, compaction, 8" reinforced joint plane concrete, miscellaneous and contingencies				
Freight Elements (suitable for an additional	141,169	1.6%		
heavy vehicle ADT of 4,000) Change to 10" reinforced joint plane concrete (mechanistic analysis), additional excavation, intersection design enhancements (maintaining small curve radii), miscellaneous and contingencies				
Urban Drainage Tied curb and gutter, storm sewer, inlet and catch basins (complete), miscellaneous and contingencies	1,129,083	12.7%		
Bus Rapid Transit	2,500,000	28.1%		
Bus rapid transit stations with roadway geometric and non- motorized access enhancements, miscellaneous and contingencies	, ,			
Traffic Signals	500,000	5.6%		
ITS Smart Corridor Elements Surveillance, detection, signal coordination with adaptive control, traveler information integration, variable message signs, transit signal priority, emergency vehicle signal preemption, miscellaneous and contingencies	1,179,167	13.2%		
Urban and Suburban Treatments Street lighting, tree planting, raised center median (pedestrian refuge/boulevard), parkway, miscellaneous and contingencies	1,258,922	14.1%		
Bicycle and Pedestrian Accommodations 2X4' bike lanes (additional pavement to freight standards), 2X5' sidewalks, at-grade crossings, curb ramps and landings, bike/ped signal activation, miscellaneous and contingencies	622,487	7.0%		
TOTAL	8,906,228	100.0%		

Prepared by the Chicago Area Transportation Study, February, 2004. Figures exclude right-of-way. Figures in 2001 dollars. See Appendix I for details and sources.

<sup>136</sup> Ibid.



<sup>135</sup> Highway program source: CATS, FY 04-09 TIP. October, 2003. p. 3-10.

Table 41 does not account for the program costs associated with structures, pavement and drainage maintenance, and operations. Highway structures may cost \$35 per square foot or more. Table 41 also does not account for the substantial costs of projects to maintain and expand the region's expressway system, which may run \$7.3 million per lane mile or more. The bottom line is that bike and pedestrian improvements are likely to run much less than 7% of the regional highway program total, even if the design above becomes standard for arterials. However, the table above demonstrates that costs to routinely accommodate bicycle and pedestrian improvements can be substantial. Thus, the costs to accommodate pedestrian and bicycle travel should be fully programmed at the time a transportation project is programmed.

#### **System Maintenance**

Maintenance comprises a large portion of transportation system expenditures. Because of widespread policies requiring local maintenance for non-motorized facilities, most of the funds for maintaining bicycle and pedestrian facilities are local, rather than state or federal in origin. In addition, federal funds tend to be geared toward improving, rather than maintaining, infrastructure for non-motorized transportation.

Soles and Spokes was unable to determine the adequacy of maintenance expenditures for sidewalks and bicycle facilities. However, as part of the Soles and Spokes survey of municipalities, we were able to determine that 78% of responding municipalities had reconstruction/replacement programs for their sidewalk systems, representing 82% of the municipal population of northeastern Illinois. Chicago has a sidewalk reconstruction/replacement program, and 90% of suburban Cook County municipal residents live in communities with such a program. This figure drops to 69% for municipal residents of the collar counties. Thus, while we are unable to determine adequacy, there is evidence to indicate widespread implementation of maintenance programs, with implied commitment from elected officials.

